

REMARKS

This application has been carefully reviewed in light of the Office Action dated December 18, 2000. Claims 1-5 remain pending in this application. Claims 1 and 4 have been amended to address the Office Action's 35 U.S.C. § 112 rejection. A clean copy of the claims is provided in appendix A. Claim 1 is the independent claim. Favorable reconsideration is respectfully requested.

Applicants note that the version of Claim 5 accidentally previously incorporated into Appendix A has been removed. Applicants intended no amendment to be made to Claim 5, but accidentally and erroneously included it. Consequently, the current response is believed to be in compliance with § 37 C.F.R. 1.121.

In response to the rejection of Claims 1-5 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctively claim the subject matter which Applicants regard as their invention, Applicants believe that the amendments to Claims 1 and 5 adequately respond to the rejection.

The Office Action rejected Claims 1-5 under 35 USC § 102(b) as being anticipated by Ker et al. (U.S. Patent 5,572,394; hereinafter "Ker"). Applicants respectfully submit that the

pending claims are patentable over the cited art for at least the following reasons.

Claim 1 recites in pertinent part "a semiconductor device" containing a "protection means being provided in a surface area of a first conductivity type having a single well of a second, opposite, conductivity type[.]"

Although Ker describes an SCR having a surface zone (N+) of the second conductivity type situated remotely from the well and forming the other anode and cathode area of the SCR element, the structure in Ker places that (N+) surface zone within an N-well (728 in Fig. 8). This structure is both more complicated and requires a greater layout area than the Applicants' invention (i.e., more than a single well). Consequently, construction of a Ker SCR is more costly and difficult than Applicants' invention.

Accordingly, at least for these reasons, Claim 1 is believed to be patentable over Ker.

Claims 2-5 depend from independent Claim 1 above and are believed patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration or reconsideration, as the case may be, of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application. Please charge any additional fees which may now or in the future be required in this application, including extension of time fees and fees for claims added upon amendment, but excluding the issue fee unless explicitly requested to do so, and credit any overpayment, to Deposit Account No. 14-1270.

Applicants' undersigned agent may be reached by telephone at the number given below.

Respectfully submitted,

By 

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited this date with the United States Postal Service as first-class mail in an envelope addressed to:

COMMISSIONER OF PATENTS AND TRADEMARKS

Washington, D.C. 20231

On April 27 2001

By 

APPENDIX A

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1. (Amended) A semiconductor device having a semiconductor body which on a surface comprises an integrated circuit containing protection means for protection against electrostatic discharge (ESD), the means being a compound element of an SCR and a gated diode, the protection means being provided in a surface area of a first conductivity type having a single well of a second, opposite, conductivity type,

wherein a surface zone of the first conductivity type forms a first anode and cathode area of the SCR element,

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the surface area has a surface zone of the second conductivity type, further denoted as first zone, situated remote from the well and forming a second anode and cathode area of the SCR element, and

the gated diode containing a gate insulated from the surface of the semiconductor body and a highly-doped second conductivity type surface zone aligned to this gate further denoted as second zone, which aligned surface zone partly overlaps the well of the second conductivity type, characterized in that the said second zone stretches out only along a part of the periphery of the well, whereas the first zone is provided along at least another part of this periphery of the well which is free from the said second zone.

2. A semiconductor device as claimed in claim 1, characterized in that the gate of the gated diode substantially stretches out only along that part of the periphery of the well along which also the said second zone of the second conductivity type stretches out.

3. A semiconductor device as claimed in claim 2, characterized in that the gated diode is arranged in the form of a MOS transistor which has a further surface zone of the second conductivity type, deposited in the surface area of the first conductivity type, the said second zone forming one of the source/drain zones of the transistor and the said further surface zone forming the other one of the source/drain zones of the transistor, the said first zone of the second conductivity type being situated at a shorter lateral distance from the surface zone of the first conductivity type provided in the well than the said further surface zone.

4. (Amended) A semiconductor device as claimed in claim 3, characterized in that the further zone of the second conductivity type and the said first zone of the second conductivity type form a zone of the second conductivity type.

5. A semiconductor device as claimed in claim 1, characterized in that the first and the second conductivity type are the p-conductivity type and n-conductivity type respectively, the said first zone forming the cathode of the SCR element and the first conductivity type zone arranged in the well forming the anode of the SCR element.